Wyco Operator's and Service Manual

Electric Flex Shaft Concrete Vibrators

General Safety Rules

WARNING

READ AND UNDERSTAND ALL INSTRUCTIONS

Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury.

SAVE THESE INSTRUCTIONS

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Work Area

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
3. **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

Electrical Safety

1. **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adaptor plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tools should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
2. **Double Insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double Insulation ⧈elimates the need for the three wire grounded power cord and grounded power supply system.
3. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
4. **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.
5. **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W".** These cords are rated for outdoor use and reduce the risk of electric shock.

Personal Safety

1. **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
2. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.

Personal Safety *(continued)*

3. **Avoid accidental starting. Be sure switch is off before plugging in.** Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.
4. **Remove adjusting keys or switches before turning the tool on.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
5. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
6. **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

Tool Use and Care

1. **Use clamps or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
2. **Do not force tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
3. **Do not use tool if switch does not turn it on or off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
4. **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
5. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
6. **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.
7. **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation. If damaged, have tool serviced before using.** Many accidents are caused by poorly maintained tools.
8. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool, may become hazardous when used on another tool.

Service

1. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
2. **When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual.** Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of electric shock or injury.

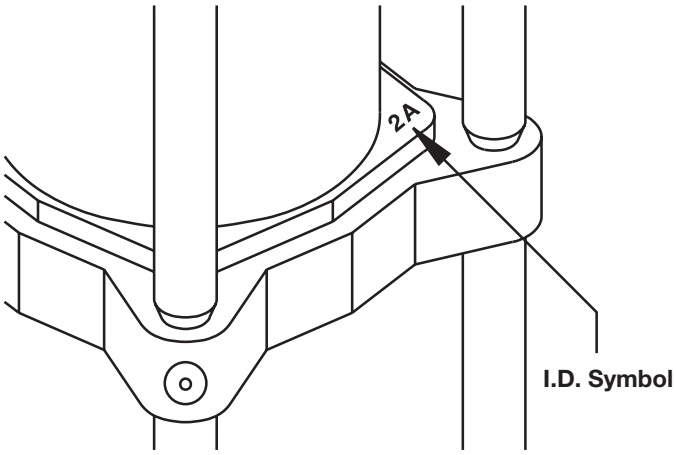
Specific Safety Rules and/or Symbols

V	volts
A	amperes
Hz	hertz
∿	alternating current
⧈	Class II Construction
⚠	splash-proof construction
⏚	Ground Terminal (protective earthing)
I	ON
O	OFF

Identification Symbol

For identification, in case the name plate has been removed, a code has been stamped on the die cast housing as shown in Figure 1 below. Order only identical replacement parts. Be sure to include part number, description, and quantity when ordering.

FIGURE 1



Model	115V Stamp	230V stamp
902/992A	2A	2V
903/993	3	3V

Functional Description

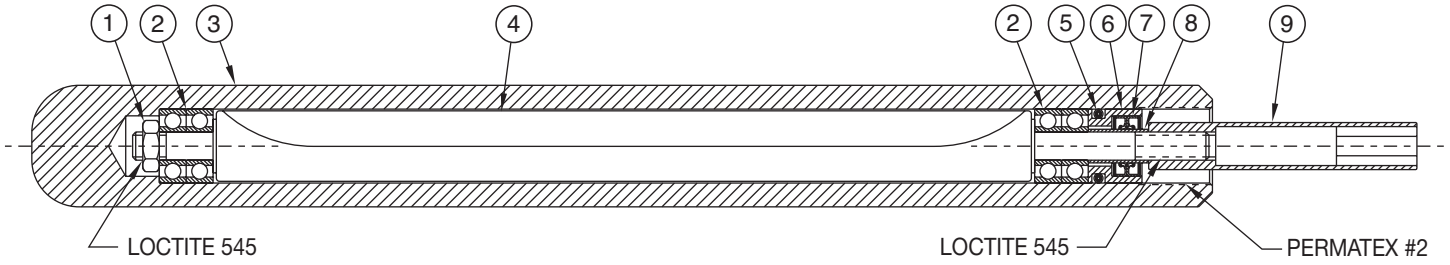
The vibrator motor is used to power concrete flex shaft vibrators which provide vibration to consolidate freshly poured concrete. The vibration is created by an eccentric weight inside the vibrator head that generates a pulse once per revolution. Use only the motor head and shaft combinations listed in the chart below.

ELECTRIC MOTOR		VIBRATOR HEAD		VIBRATOR SHAFT	
AMPS	CAT. NO.	SIZE (IN.)	CAT. NO.	LENGTH	CK SERIES
12 6	902A, 992A 902A-230, 992A-230	13/16 1 1-3/8 1-3/4	750-D 750-EH 750-FI 750-GI	2-20 FT	8900 9500
15 7.5	903, 993 903-230, 993-230	1-3/8 1-3/4 2 2-1/4	750-FI 750-GI 750-LI 750-MI	2-20 FT	9500

Assembly Drawings

Marking on End Cap	Square Size	Assembly Part #
D	13/16"	877520
EH	1"	877526
1.38B	1-3/8"	878533

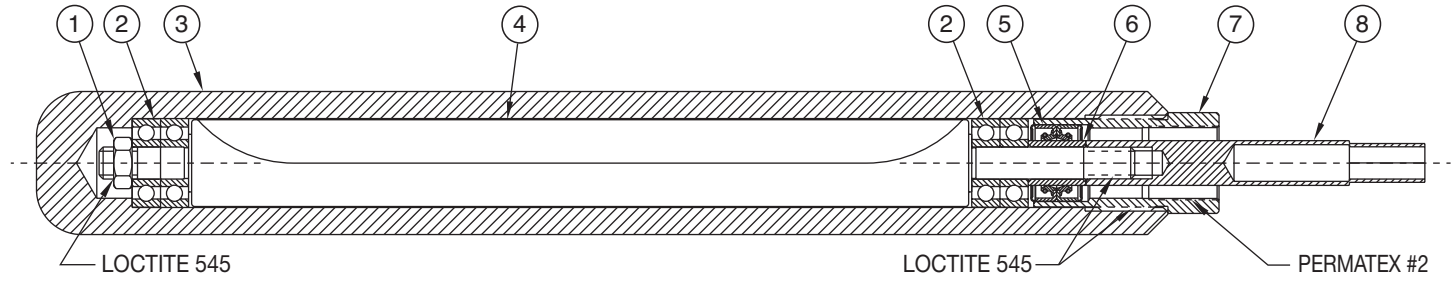
Marking on End Cap	Square Size	Assembly Part #
1.75B	1-3/4"	878540
2.00B	2"	878563
2.25B	2-1/4"	878568



No	Description	Qty	D
1	Nut, Hex Jam	1	435638
2	Bearing, Ball	4	097011
3	Housing, Square	1	587320
4	Rotor	1	717340
5	O-Ring, Buna	1	*

No	Description	Qty	D
6	Holder, Seal	1	*
7	Seal, Oil	2	*
8	Bushing	1	*
9	Driver, Hex	1	382428

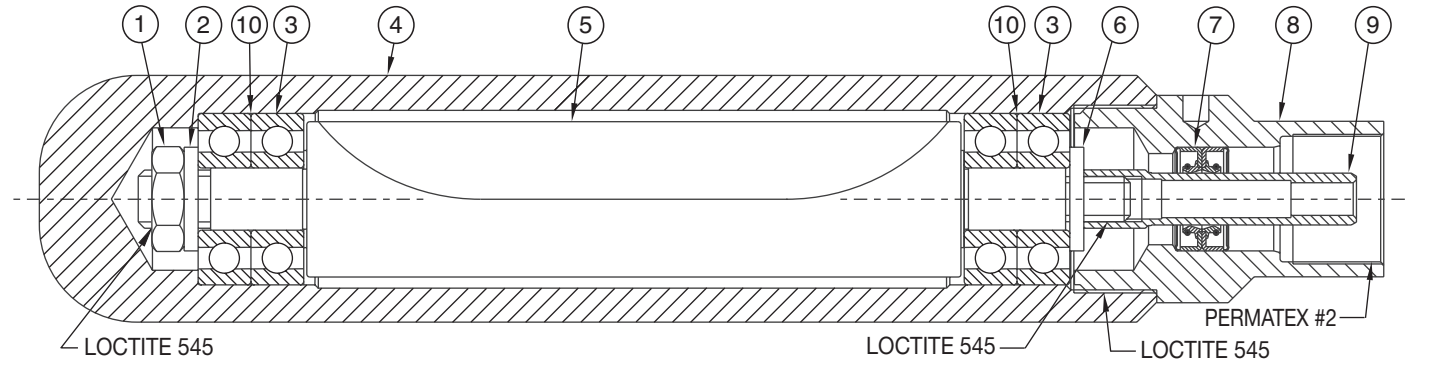
**All of these items are available assembled in Kit #747540*



No	Description	Qty	EH
1	Nut, Hex Jam	1	432710
2	Bearing, Ball	4	097012
3	Housing, Square	1	587325
4	Rotor	1	717345
5	Seal, Oil	2	**

No	Description	Qty	EH
6	Bushing	1	177325
7	End Cap	1	**
8	Driver, Hex	1	384447

***End Cap Assy with seals is Part #207248. (Order bushing separately)*

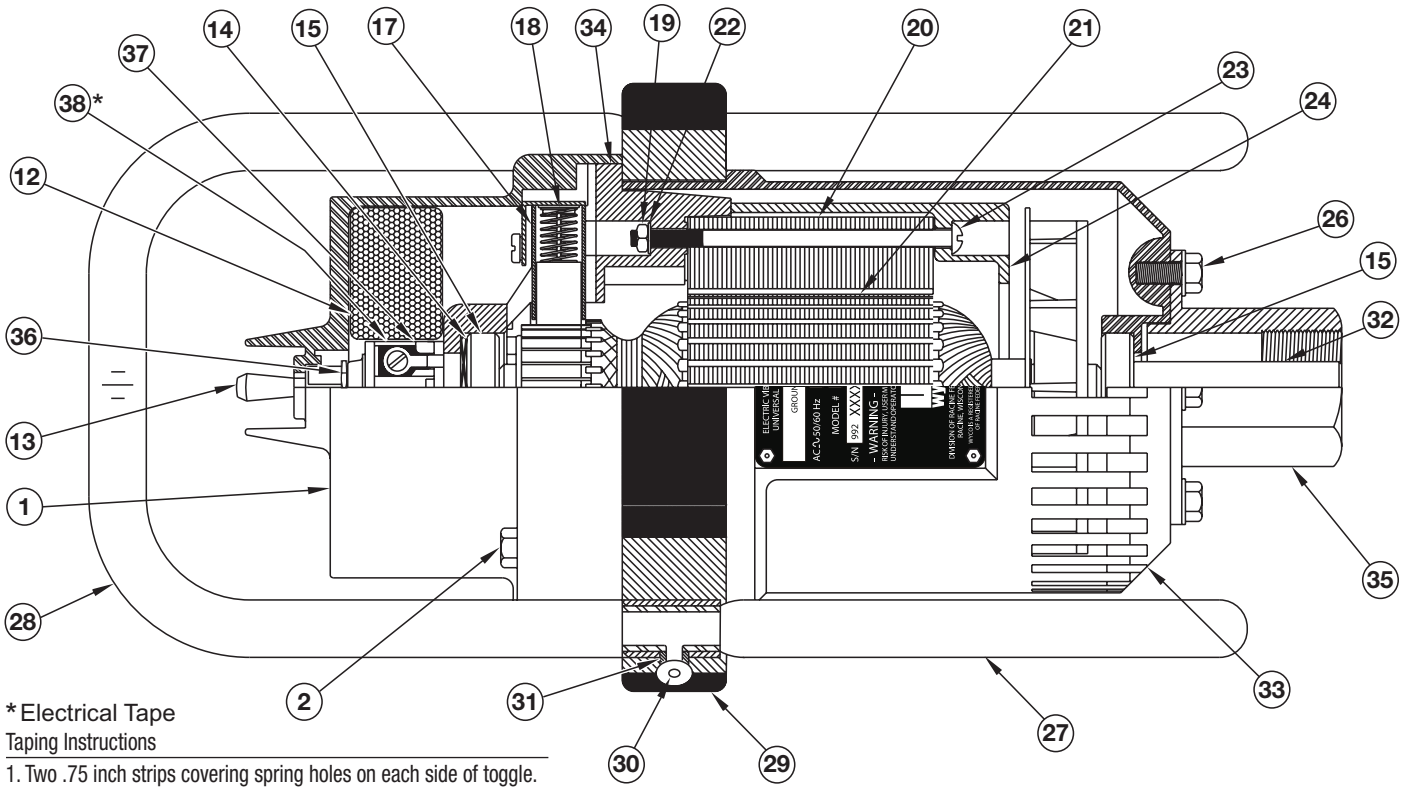


No	Description	Qty	1.38B	1.75B	2.00B	2.25B
1	Nut, Hex Jam	1	432708		432707	
2	Washer, Flat	1	887015		887011	
3	Bearing, Ball	4	096013	096010	096011	096020
4	Housing, Square	1	588331	588339	588354	588368
5	Rotor	1	718357	718335	717360	718365

No	Description	Qty	1.38B	1.75B	2.00B	2.25B
6	Washer, Flat	1	887015		887016	
7	Seal, Oil	2	***			
8	End Cap	1	***			
9	Driver, Hex	1	384446			
10	Shim	2	419701		N/A	

****Manufacturer suggests using End Cap with pressed in seals (1.38B - #208231) (1.75B - #208236) (2.00B - #208261) (2.25B - #208268) However Seal and End Cap are available separately upon request.*

Electric Concrete Vibrator Assembly Drawings



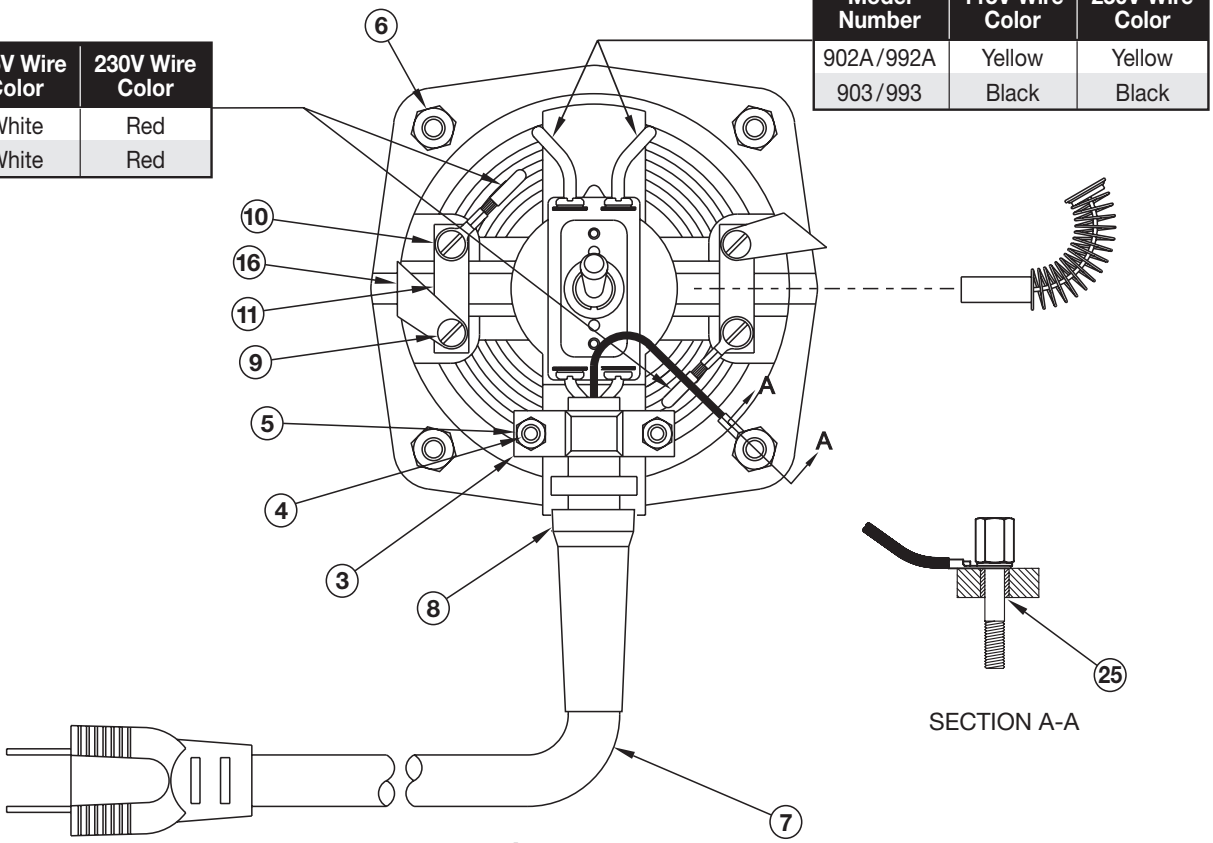
*Electrical Tape

Taping Instructions

1. Two .75 inch strips covering spring holes on each side of toggle.
2. Two 1.75 inch strips covering face plate holes and rivets extending over sides of switch.
3. Two 4 inch strips covering switch wires (Bottom first from edge of cord clamp. Top next with tape starting about half way through switch depth)
4. One 12 inch strips make two wraps around switch.

Model Number	115V Wire Color	230V Wire Color
902A/992A	White	Red
903/993	White	Red

Model Number	115V Wire Color	230V Wire Color
902A/992A	Yellow	Yellow
903/993	Black	Black



SECTION A-A

Electric Concrete Vibrator Drawing Parts List

Parts List (see drawings on page 4)

Item	Description	Qty	115V 12 AMP 902A	115V 12 AMP 992A	115V 15 AMP 903	115V 15 AMP 993	230V 6 AMP 902A	230V 6 AMP 992A	230V 7.5 AMP 903	230V 7.5 AMP 993
1	End Cap, Plastic; Elect Motor; Gold	1	415335							
2	Screw, Hex Head; Plastic; 1/4-20 x 1/2	4	415308							
3	Clamp, Cord	1	415324							
4	Bracket, Cord Clamp	1	415326							
5	Nut, Lock; 8-32; Nylon Insert; Zinc	2	415512							
6	Stud, Motor Housing	4	415309							
7	Cord Set, w/Plug	1	415304	415399	415304	415399	415306	415401	415306	415401
8	Bend Relief	1	415330	415338	415330	415335	415330	415338	415330	415338
9	Screw, Pan Head; #8-32 x 3/8 Long	4	415359							
10	Washer, Lock; #8	4	415360							
11	Clamp, Brush Holder	2	415322							
12	Filter	1	415554							
13	Switch, Toggle	1	415361							
14	Spring, Loading	1	415333							
15	Bearing, Ball; 1.18OD; .394 Bore	2	099909							
16	Retainer, Brush	2	415323							
17	Holder, Brush	2	415515							
18	Assy, Brush & Spring	2	415525				415230			
19	Nut, Hex; #10-32	2	415363							
20	Field	1	415211		415511		415221		415521	
21	Assy, Armature	1	415209		415509		415219		415539	
22	Washer, Lock; #10	2	415362							
23	Screw, Field; #10-32 x 3-5/8	2	—		415358		—		415358	
23	Screw, Field; #10-32 x 3	2	415212		—		415212		—	
24	Sleeve, Field	1	765210		765510		765210		765510	
25	Grounding Insert	1	—	175512	—	175512	—	175512	—	175512
26	Screw, Hex Thd Cut; 1/4-20 x 5/8	4	435510							
27	Frame, Tube; Inner	2	415528							
28	Frame, Tube; Outer	2	415529							
29	Support, Rubber Frame	1	415315							
30	Rivet, Pop; Steel Plated	4	415311							
31	Bushing	4	415310							
32	Driver, Hex; Motor; Black Oxide	1	415518							
33	Housing, Motor; Painted	1	415526							
34	Housing, Inner Motor	1	415519							
35	Connector, Motor; Zinc Plated	1	465513							
36	Hex Panel Nut	1	—	415400	—	415400	—	415400	—	415400
37	Switch Tent	1	—	415367	—	415367	—	415367	—	415367
38	Electrical Tape, .75 wide	25"	—	415368	—	415368	—	415368	—	415368

Operation

- Inspect the vibrator for damage prior to using this equipment. Read, understand and follow all safety and maintenance instructions in this manual. Carefully check that the power cord has no cuts or exposed wires and that the vibrator housing is intact. Do not use damaged equipment.
- Insure that the motor, shaft and head are connected securely as described in the maintenance instructions.
- Insure that the plug is connected to the appropriate power source.
- Insure that the motor is not immersed in concrete and that any cord connections are not in water or fresh concrete.
- Turn vibrator on using switch by moving the toggle to the 1 or on position.
- Insert the vibrator head vertically into the concrete to be consolidated.
- Do not run the vibrator head outside of fresh concrete for an extended period of time, since the vibrator depends on moving concrete to cool the bearings.
- Avoid sharp bends in the flex shaft during operation. Sharp bends reduce shaft life.
- Remove head from concrete and turn switch to the off position.

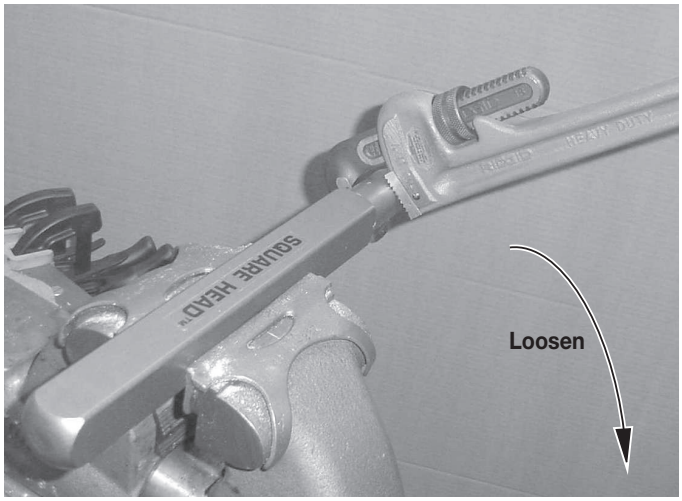
Service and Maintenance Instructions

Service the vibrator head after every 50 hours of operation to insure trouble-free running on the job.

When servicing, always replace hex driver, seals and bearings. (Or bushing for D & EH Heads) - **(See drawings Page 3)**

All heads are equipped with seals at the flexible shaft end. All heads contain oil, the seals serve a double purpose, to keep the oil in the head and to keep the grease from the flexible shaft out of the head.

1. Hold the nose end in a vise and unscrew the end cap (counter-clockwise) with a chain wrench or a good pipe wrench.



2. Pull the eccentric rotor assembly out of the housing. (If the bearings are stuck and you have difficulty removing them from the housing, screw end cap partly back into the housing and bounce the head and cap down on a block of wood, in order to loosen the bearings from their seat, then pull out the rotor assembly.)

Note: Hexagon Driver has left hand threads

3. Flush rotor assembly and housing with solvent and wipe all parts clean. Replace bearings, seals and hex driver. Maintain concentric alignment of hex driver with respect to rotor shaft. Refill with proper amount of Wyco No. 514-O non-foaming vibrator oil. Apply Loctite 545 or equivalent to threads on both ends of rotor. **See Chart Below**

HEAD OIL REQUIREMENTS

Head Size	Oil Required
D - 13/16" Square	1/2 ounce
EH - 1" Square	3/4 ounce
1.38B - 1-3/8" Square	1 ounce
1.75B - 1/3/4" Square	1-1/4 ounces
2.00B - 2" Square	2 ounces
2.25B - 2-1/4" Square	3-1/2 ounces

4. Replace rotor assembly in head housing. Apply Loctite 545 adhesive/sealant or equivalent all around the threads of the end cap. Tighten and wipe off excess Loctite 545 adhesive/sealant.

Flexible Shaft - Lubrication

When vibrators are shipped completely assembled from the factory, the shafts are lubricated and broken-in. If separate cores and casings are shipped, they require the following lubrication and break-in procedure.

To lubricate, lightly coat the core with grease (514-B Wyco shaft lubricant) while inserting it into the casing. Do not over lubricate since the surplus lubricant may get past the seal in the vibrator head. Over lubrication will also increase the amount of torque required to operate the vibrator resulting in additional stress on the motor and possibly early core and casing failure.

When adding lubricant on the job, after each 50 hours of operation, loosen the casing from the motor and pull out the core about 15 to 18 inches. Apply lubricant as above to the exposed section of core. Reinstall core insuring that it engages with the vibrator head. During operation the grease will travel the full length of the casing.

A break-in procedure is required after the assembly of seperately shipped core & casing. This procedure involves repeatedly coiling the flex shaft from the head to the motor while the motor is running. The flex shaft should be coiled and uncoiled repeatedly until the amperage to operate the vibrator is reduced and remains constant. It must be reduced to a level lower than the rated amperage on the name plate. If an ammeter is not available, an increase in speed (RPM) can be heard. The coiling and uncoiling should be repeated until the speed increases and remains constant. If this procedure is not followed, additional torque will be required from the motor, thus reducing the motor life.

NOTE: When attaching Vibrator Head to Flexible Shaft casing, always use Permatex Form-a-Gasket No. 2 on the threads.

One of the greatest enemies of satisfactory performance of Vibrator Heads is water. As the head is submerged in the mix, water and cement try to get into the head. In addition to tightening the head onto the flexible shaft tightly, the threads must be coated with “Permatex Form-a-Gasket #2.” This must be done each and every time that the head is removed and re-installed.

Wyco Motor Service and Maintenance Instructions

Wyco vibrator motors are designed to operate 50 to 100 hours between normal "preventive maintenance" intervals. The service instructions below should be followed if it becomes necessary to replace brushes, switch or cord.

NOTE: Use only factory authorized replacement parts.

BRUSH REPLACEMENT — REMOVAL:

A. Disconnect line cord (7) from power source.

B. Secure motor in upright position [switch (13) up] by clamping external portion of motor connector (35) in a bench vise.

C. Remove four plastic bolts (2) and lift off end cap (1).

D. Loosen the pan head screw (9) that holds brush retainer (16) by a 1/4 turn.

E. The brush spring will pop out. Carefully remove the brush (18) by gently pulling on the spring.

F. Repeat steps for the opposite side.

Note: If brushes are worn to 3/8" (9 mm) or less, they should be replaced.

REPLACEMENT:

G. Align new brush (18) with brush holder (17) and insert.

Note: Avoid chipping brush edges when inserting.
Note: Ensure that milled slot on brush holder (17) mates with brush clamp (11) and longer end of brush holder (17) is toward armature (21).

H. Feed spring into brush holder (17), hold spring in place and reposition brush retainer (16). Tighten pan head screw (9) while holding brush retainer (16) firmly against brush holder (17).

J. Repeat steps for the opposite side.

K. Replace end cap (1) and four plastic bolts (2).(See illustration on bottom of Page 4)

Note: Do not over tighten bolts!

SWITCH REPLACEMENT — REMOVAL:

A. Disconnect line cord (7) from power source.

B. Secure motor in upright position [Switch (13) up] by clamping hex portion of motor connector (35) in a vise.

C. Remove four plastic bolts (2) and lift off end cap (1).

D. On grounded motors remove hex nut (36), switch tent (37) and tape (38). Remove four screws that secure wire leads to switch (13) and remove it from inner motor housing (34).

Note: The switch terminals that each wire is connected to and the vertical slot in threaded barrel of switch (13) faces toward line cord (7).

REPLACEMENT:

E. Position new switch (13) on mounting lugs on inner motor housing (34).

Note: Vertical slot in threaded barrel of switch (13) must be toward line cord (7) in order to have ON-OFF switch positions agree with marking on end cap (1).

F. Position each of the four wires to the same terminal location previously used.

G. Assemble four screws through lead terminals and tighten securely to switch (13).

H. On grounded motors only, tape switch with item (38), slide switch tent (37) on switch and secure with hex nut (36).

I. Replace end cap (1), filter (12) and four plastic bolts (2).

POWER CORD REPLACEMENT — REMOVAL:

A. Disconnect line cord (7) from power source.

B. Secure motor in upright position [switch (13) up] by clamping hex portion of motor connector (35) in a vise.

C. Remove four plastic bolts (2) and lift off end cap (1).

D. Remove the two screws holding cord set (7) leads to switch (13).

E. Alternately loosen lock nuts (5) until they are flush with top of cord bracket (4).

Note: Do not remove nuts (5) from cord bracket (4).

F. Remove cord (7) from under cord clamp (3).

G. Note approximate position of bend relief (8) on old cord (7) and remove it for reuse.

REPLACEMENT:

H. Position bend relief (8) on new cord (7) in approximate position to fit into grooves in inner motor housing (34).

J. Insert new cord (7) through open cord clamp (3).

K. Position cord (7) so the screw terminals on cord leads are aligned with screws and lead colors match the drawing.

L. Assemble two screws through lead terminals and tighten securely to switch (13) as shown.

M. Hold switch (13) firmly in position on inner motor housing (34) lugs. Firmly position cord (7) and bend relief (8) into their molded nests in the inner motor housing (34). Reposition bend relief (8), if necessary, to eliminate stretching or kinking of cord (7) between switch terminals and bend relief (8).

N. Hold cord (7) and bend relief (8) firmly in place and alternately tighten the two lock nuts (5) until switch (13), cord (7), and cord clamp (3) are tightly secured.

Note: Be sure cord clamp (3) is clamping outer jacket of cord (7) and not on the wire leads.

P. Replace end cap (1) and four plastic bolts (2).

EXTENSION CORDS

When selecting an extension cord for use with Wyco electric motor cord sets using a 2-prong polarized plug(double insulated motors), an equivalent plug set must be used. Extension cords must be approved for outdoor use and the wire gauge of the cord must be selected from the following table.

Extension Cord Wire Minimum Size Requirements

Motor Number	Volts	Rated Amps	AWG
902A	115	12	16
992A	115	12	16
903	115	15	14
993	115	15	14
902A	230	6	18
992A	230	6	18
903	230	7.5	18
993	230	7.5	18

WYCO TOOL
8635 Washington Avenue
Racine, WI 53406-3738 USA

Tel: (262) 639-6770 or 800-233-9926
Fax: (262) 639-2023 or 888-992-6872
Website: www.wycotool.com
E-Mail: wycosales@wycotool.com

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FORM NO. W150 KB PRINTED IN USA 6/08